

CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

1. A method of processing semiotic data, comprising:

receiving biometric data including a data set P ;

selecting a function h , and for at least one of each said data set P to be collected, computing $h(P)$;

destroying said data set P ; and

storing $h(P)$ in a database, wherein said data set P cannot be extracted from $h(P)$.

2. The method according to claim 1, wherein said semiotic data comprises biometric data.

3. The method according to claim 1, wherein said function h comprises a secure hash function.

4. The method according to claim 1, further comprising:

to determine whether P' is a predetermined subject, comparing $h(P')$ to all available $h(P)$ s to determine whether there is a match.

[illegible]

one of destroying said private key K and sending said private key K to

choosing said function h as the public encryption function corresponding to k .

7. The method according to claim 5, further comprising:

8. The method according to claim 5, wherein the trusted party comprises a panel of members, and

wherein a secret is shared among the members so that only at least a predetermined number of panel members can reconstitute the secret in its entirety by putting together their share of the secret.

9. The method according to claim 1, wherein the data set P is not determined perfectly by its reading,

wherein each reading gives a number P_i , wherein i is no less than 0, wherein P_0 is for an initial reading, and a secret version of said initial reading is stored after further processing thereof,

wherein reading P_0 is different from P_i for $i > 0$, and the secret version of P_0 is different from the secret version of P_i , such that no identification is possible by a direct comparison of the encrypted data.

10. The method according to claim 9, further comprising:

extracting sub-collections S_j from the collection of data in data set P ;

and

encrypting a predetermined number of such sub-collections such that at least one of the sub-collections is reproduced exactly with a predetermined probability.

11. The method according to claim 10, further comprising:

comparing encrypted versions of the sub-collections S_j with those data stored in said database,

wherein if one or more of the sub-collection S_j matches with said data, then verification is deemed to have occurred.

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12. The method according to claim 11, further comprising:

each time a P_i , with $i > 0$, is read, computing all possible predetermined size variations of P_i which correspond to an acceptable predetermined imprecision of the reading; and

5 encrypting all such modified data, and comparing said encrypted modified data to data stored in said database.

13. The method according to claim 12, wherein for a plurality of users of the same biometric information, said biometric information is encrypted differently for each user.

10 14. The method according to claim 1; wherein said data set comprises a personal data set.

15. A method of processing biometric data, comprising:

acquiring unencrypted biometric data including at least one data set P ;

encrypting, with one of a secure hash function and an identity function,

15 each said at least one data set acquired;

destroying the unencrypted data set P ; and

storing each of the at least one encrypted data set in a database,

wherein unencrypted biometric data is not available nor retrievable from said data stored in said database.

16. The method according to claim 15, wherein said data set comprises a personal data set.

17. A method of extracting components of biometric data which are stable under measurement errors, comprising:

- 5 acquiring unencrypted biometric data including at least one data set P ;
 encrypting each said at least one data set acquired to form at least one encrypted data set;
 destroying the unencrypted data set P ; and
 storing each said at least one encrypted data set in a database, wherein
10 unencrypted biometric data is not available nor retrievable from said data stored in said database.

18. The method according to claim 17, wherein said data set comprises a personal data set.

19. A method of extracting components of biometric data which are stable
15 under measurement errors, comprising:

- acquiring unencrypted biometric data including at least one data set P ;
 encrypting each said at least one data set acquired to form at least one encrypted data set;

destroying the unencrypted data set P ; and

storing each said at least one encrypted data set in a database, wherein unencrypted biometric data is not available nor retrievable from said data stored in said database,

5 extracting sub-collections S_j from the collection of data in said data set P ; and

encrypting a predetermined number of such sub-collections such that at least one of the sub-collections is reproduced exactly with a predetermined probability.

10 20. The method according to claim 19, wherein said data set comprises a personal data set.

21. The method according to claim 19, further comprising:

comparing encrypted versions of the sub-collections S_j with those data stored in said database,

15 wherein if one or more of the sub-collection S_j matches with said data, then verification is deemed to have occurred.

22. The method according to claim 21, wherein a data set P is not determined perfectly by its reading, such that each reading gives a number P_i , wherein i is

no less than 0, wherein P_0 is for an initial reading, and a secret version of said initial reading is stored after further processing thereof,

wherein reading P_0 is different from P_i for $i > 0$, and the secret version of P_0 is different from the secret version of P_i , such that no identification is possible by a direct comparison of the encrypted data.

23. The method according to claim 21, further comprising:

each time a data set is read P_i , with $i > 0$, is read, computing all possible predetermined size variations of P_i which correspond to an acceptable predetermined imprecision of the reading; and

encrypting all such modified data, and comparing said encrypted modified data to data stored in said database.

24. A system for processing semiotic data, comprising:

means for receiving semiotic data including a data set P ;

means for selecting a function h , and for each said data set P to be collected, computing $h(P)$;

means for destroying said data set P ; and

means for storing $h(P)$ in a database, wherein said data set P cannot be extracted from $h(P)$.

25. A system of processing semiotic data as in claim 25, wherein said semiotic data comprises biometric data.

26. The method according to claim 24, wherein said data set comprises a personal data set.

5 27. A system for verifying biometric data without storing unencrypted biometric data, comprising:

means for acquiring unencrypted biometric data including at least one data set *P*;

10 means for encrypting each said at least one data set acquired to form at least one encrypted data set;

means for destroying the unencrypted data set *P*; and

means for storing each said at least one encrypted data set in a database, wherein unencrypted biometric data is not available nor retrievable from said data stored in said database.

15 28. The method according to claim 27, wherein said data set comprises a personal data set.

29. A system for extracting components of biometric data which are stable under measurement errors, comprising:

acquiring unencrypted biometric data including at least one data set P ;
encrypting each said at least one data set acquired to form at least one
encrypted data set;

destroying the unencrypted data set P ; and

5 storing each said at least one encrypted data set in a database, wherein
unencrypted biometric data is not available nor retrievable from said data
stored in said database,

extracting sub-collections S_j from the collection of data in said data set
 P ; and

10 encrypting a predetermined number of such sub-collections such that at
least one of the sub-collections is reproduced exactly with a predetermined
probability.

30. The method according to claim 29, wherein said data set comprises a
personal data set.

15 31. A signal-bearing medium tangibly embodying a program of machine-
readable instructions executable by a digital processing apparatus to perform a
method for computer-implemented processing biometric data, said method
comprising:

receiving biometric data including a data set P ;

selecting a secure hash function h , and for each data set P to be collected, computing $h(P)$;

destroying said data set P ;

storing $h(P)$ in a database, wherein said data set P cannot be extracted
5 from $h(P)$.

32. The method according to claim 31, wherein said data set comprises a personal data set.

33. A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a method for computer-implemented verifying of biometric data without storing
10 unencrypted biometric data, said method comprising:

acquiring unencrypted biometric data including at least one data set P ;

encrypting each said at least one data set acquired to form at least one encrypted data set;

15 destroying the unencrypted data set P ; and

storing each said at least one encrypted data set in a database, wherein unencrypted biometric data is not available nor retrievable from said data stored in said database.

34. The method according to claim 32, wherein said data set comprises a personal data set.

35. A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a method for computer-implemented extracting components of biometric data which are stable under measurement errors, said method comprising:

acquiring unencrypted biometric data including at least one data set P ;

encrypting each said at least one data set acquired to form at least one encrypted data set;

destroying the unencrypted data set P ;

storing each said at least one encrypted data set in a database, wherein unencrypted biometric data is not available nor retrievable from said data stored in said database;

extracting sub-collections S_j from the collection of data in said data set

P ; and

encrypting a predetermined number of such sub-collections such that at least one of the sub-collections is reproduced exactly with a predetermined probability.

36. The method according to claim 35, wherein said data set comprises a personal data set.